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ABSTRACT

Two procedures for assessing the press (defined as the characteristic pressures, stresses, rewards, or conformity demanding influences of a particular institution) of high school environments were investigated across 3 factor-analytically derived dimensions (strong intellectual orientation, school activities, and strong environment control). Subjects consisted of 1,562 randomly selected students drawn from 15 small (545 males and 544 females) and 5 large (258 males and 215 females) Iowa schools. All the small schools and one large school were from rural areas. Data were analyzed in terms of: participation frequency and diversity and alienation (analysis of variance); self concept and participation in five activity areas (multiple regression); and school size and sex differences (multivariate analysis of variance). Results indicated that with the use of regression methodology, strongest relationships were observed in the smaller institutions, while with direct measurement using the High School Characteristic Index, press appeared strongest within the larger schools. (JC)

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School size and school press:

Attempts to quantify differences in the high school environment

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Abstract

This study investigated two procedures for assessing the press of large and small high school environments. The first method employed a regression methodology to estimate the impact of student participation in school activities upon self-concept. The strongest relationships were observed in the smaller institutions. The second procedure attempted to directly measure press using the High School Characteristic Index. This instrument indicated press to be strongest within larger schools. Arguments presenting a possible reconcilation of these data are provided.

School size and school press:

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The importance of school size in determining the student's opportunities for involvement within some aspect of the school environment has been demonstrated in a number of studies (Baird, 1969; Barker & Gump, 1964; Grabe, 1976a, Willems, 1967). When summarized, this research indicates that students from smaller institutions: (a) participate in more school related activities, (b) participate in a greater variety of school related activities, (c) feel a greater "sensed obligation" to be involved in the affairs of their school and (d) evaluate their own worth more in terms of school related accomplishments. A model of school involvement proposed by Barker and Gump (1964) can seemingly account for all of these differences using a concept termed ecological pressure. These authors argue that students in smaller schools are subject to greater pressure in order to keep a relatively large number of activities in operation. This peer and adult pressure could conceivably result in greater involvement with the school and a strong impact of school success on the student's perception of his or her personal worth.

The data base for this theory has come mainly from studies of the college environment (Astin, 1963a, 1963b; Baird, 1974; Stern, 1960, 1963). These studies of the college environment indicate that certain types of institutions tend to attract certain types of students. This situation was explained using the classic $B = f(P,E)$ formulation of Lewin (1935) as elaborated in the need-press model of Murray (1938). Press is defined as the characteristic pressures, stresses, rewards, or conformity demanding influences of a particular institution (Stern, 1960). Needs refer to the student's personal

goals. When applied to college students, the need-press theory states that a student is likely to select a college that emphasizes activities consistent with that student's goals. In other words, the student creates need-press congruency by his choice of a college.

But what happens if a student has no control over the educational institution he or she attends, such as high school? After the research concerning need-press congruency in colllege environments began to appear in the literature, a similar approach was applied to the study of high school environments (Herr, 1965; Kulka, 1974; McDill, Rigsby & Meyers, 1968; Stern, 1961). This investigation is a continuation of this trend.

The present study seeks to identify and possibly interpret the critical dimensions in the high school environment that have the capacity to differentiate schools varying in the size of the student population. The High School Characteristics Index, an instrument developed by Stern (1961) and later factor analyzed and applied by Mitchell (1968), was used for this purpose. In addition to comparing large and small schools on this instrument, students also completed an activity checklist, a measure of school related alienation and a self-concept inventory. This battery of instruments was included to allow for the replication of earlier data (e.g., Grabe, 1976a) and provide an indication of the manner in which press, participation in activities and student self-concept are interrelated in school of differing size.

METHOD

Instruments. Twelve scales from the High School Characteristics Index were selected as measures of school press. The selection of specific scales was based upon the methodology outlined by Mitchell (1968). Briefly, it was decided to investigate three factor-analytically derived dimensions: strong intellectual orientation, school activities and strong environment control.

The manner in which each student perceived press in one of the three areas was secured by summing the scores from each scale with a loading of .50 or higher on the factor and dividing by the number of variables summed. A further interpretation and description of the three factors can be obtained from Mitchell (1968).

A school related measure of self-concept was developed by combining three factor-analytically derived scales from the Piers-Harris Children's Self-Concept Scale. The three scales, intellectual and school status, physical appearance and attributes, and popularity (Piers & Harris, 1964) yielded a brief 32 item instrument which has been shown to be related to the type of issues in question in this research (Grabe, 1976a, 1976b).

The alienation scale used was constructed by Kunkel, Thompson and McElhinney (1973). Thirteen items selected from the original scale were used in the present study (see Appendix A). It should be stated that this scale is a crude instrument with no psychometrically proven qualities. However, it does purport to deal specifically with the topics of interest in this investigation.

Finally, each student was asked to mark on a checklist the activities they had been involved in during the previous year. Participation was divided into five broad areas; academics, athletics, social, fine arts and clubs.

Subjects. A total of 1562 students were involved in this research. The number of subjects included in a given analysis may vary slightly depending upon the number of students correctly filling out the instruments involved. The subject population was drawn from 15 small and 5 large high schools. A school was designated as large if the total enrollment in the upper three grades exceeded 580. A total of 545 males and 544 females participated from small schools. A total of 258 males and 215 females were involved in the larger schools. Subjects were obtained by sampling

available classes within each institution.

The small schools and one large school drew their students from rural Iowa populations. Of the remaining large schools, two were located in intermediate-sized and two in larger-sized Iowa cities. It should be noted that school and community size are partially dependent. With the number of schools available in this sample, it was not possible to control community size as a possible confounding.

Analyses. Data analyses can be separated into three categories. First, participation frequency, participation diversity and alienation were analyzed using a 2 (sex) x 2 (school size) analysis of variance. Two-hundred subjects were selected at random from each of the four possible groups for these analyses. The participation diversity score represents the number of activity areas in which a student lists at least one activity.

Secondly, a multiple-regression procedure was used to predict differences in self-concept using participation in the five activity areas as the independent variables. A separate analysis was conducted within each group.

Finally, a multivariate analysis of variance was used to search for school size and sex differences in student reactions to the three dimensions from the High School Characteristics Index. Separate univariate analyses were also performed on each dimension.

RESULTS

Participation frequency and diversity. A 2 x 2 (school size x sex of student) analysis of variance was performed on the reported frequency of participation within each activity area. Group means for all five activity areas are provided in Table 1.

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Insert Table 1 about here

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A significant main effect[1] for school size was present in the analyses for all five activity areas. In all cases, the students from the smaller institutions were observed to take part in a larger number of activities. Sex differences were found for four of the activity areas: athletics, academics, fine arts and clubs. As might be expected, females indicated a greater frequency of participation in academics, fine arts and clubs. Males were more likely to participate in athletic activities.

Sex of student interacted with school size for one activity area. For fine arts, there was a greater discrepancy between the participation frequency of male and female students in small schools than in large schools.

Significant differences in the diversity of participation were associated with school size, sex and the interaction of these two variables (see Table 1). For the main effects, greater diversity of participation was found among female students and students from the smaller institutions. The interaction was produced because a larger sex difference in diversity of participation existed in the smaller schools.

Student alienation. The same 2 x 2 analysis of variance was applied to the alienation scores. The results are reported in Table 1.

Two main effects were significant. Students from smaller schools and males were found to be significantly more alienated. The interaction of these two factors demonstrated that the difference between the mean alienation scores of males and females was greater within the small school environment.

Regression analyses. Participation scores for each of the five activity areas were entered in a multiple-regression formula with self-concept as the dependent measure. This procedure was repeated for each group of subjects. The amount of variability accounted for by each model and the level of significance achieved by the models and individual predictors are given in Table 2.

The hypothesis being tested was that the greatest amount of variability in self-concept scores would be accounted for within the small school populations. In support of the hypothesis, the amount of variability accounted for was larger within the small school models. It should be noted that it is not possible to compare the amount of variability accounted for within two groups using a test of statistical significance. However, such comparisons can provide some interesting descriptive information.

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Insert Table 2 about here

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Multivariate analysis of press. A 2 x 2 multivariate analysis of variance was performed with school size and sex of student as between subject factors and the three dimensions of the High School Characteristics Index (strong intellectual orientation, school activities, and strong environmental control) as correlated dependent measures of school press. This analysis indicated a significant effect of student sex and school size on student reactions to the three dimensions of school press. The interaction of student sex and school size was not significant.

Similar patterns of significance were observed for separate 2 x 2 univariate analyses of variance performed on the three measures of press. The single exception was that a school size main effect was not found for strong environmental control.

Figure 1 presents the group means for the three dimensions of the High School Characteristics Index after converting the raw scores to *z* scores. In all cases, female students were more sensitive than male students to school press. Larger schools seem to produce a greater press than smaller schools in the areas of strong intellectual orientation and school activities.

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Insert Figure 1 about here
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Variable correlation matrices. Data concerning the relationship between self-concept, alienation and the three dimensions of school press are presented in Tables 3-5. Separate analyses are provided by sex and school size. One important generality in these data concerns the pattern by which alienation and the measures of school press are associated. In general, a school environment perceived to have a stronger measure of press is also perceived to be less alienating. The reader is cautioned against comparing the dimensions of press in terms of a possible impact on student alienation. The alienation scale is biased in its concentration on academic goals and makes a comparison of the impact of different press variables inappropriate.

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Insert Tables 3-5 about here
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DISCUSSION

In terms of student participation and self-concept, the effect of school size was nearly the same as observed in earlier research (Baird, 1969; Barker & Gump, 1964; Grabe, 1976a). In all five activity areas and in the diversity of involvement, students from smaller schools were observed to be more active. While this investigation has not concerned itself directly with the positive and negative educational benefits of these differences in school associated experiences, the magnitude of the differences alone warrants further study.

A more central concern of the present study was a comparison of two methods for examining the pressures exerted on students within the school. The first method related student participation to feelings of personal worth. As in an earlier study (Grabe, 1976a), the relationship between activities and self-concept was strongest within the smaller schools. The data concerning

self-concept suggests an important expansion of the original Barker and Gump (1964) position. This expansion concerns the psychological impact of being able to meet the pressures exerted toward participation. Assuming Barker and Gump (1964) and Willems (1967) are correct in arguing for the existence of greater ecological pressure and sensed obligation in smaller schools, the relationship between participation and self-concept has a great deal of intuitive appeal. For example, a male student from a small school may feel humiliated in his failure to make an athletic team. Few students among the possible thousands in a larger institution would be ridiculed by their peers for such a failure.

It had been hypothesized that the measures of school press taken from the High School Characteristics Index would be supportive of the differences in sensed obligation associated with school size. Put more directly, the data should indicate greater press in the smaller schools. However, the two measures of press which should have most clearly supported this hypothesis, strong intellectual orientation and school activities, produced the opposite results. In both cases, the greatest press was observed within larger schools. In reconciling these differences, it might be argued that the two methodologies employed to measure press were very different and that the High School Characteristics Index does not relate very well to the expressed definition of press (Stern, 1960). In responding to the High School Characteristics Index, students seem to be indicating their awareness of possible areas of involvement within the school environment. This is not an appropriate measure of perceived pressure. Barker and Gump (1964) admit that large schools do provide more areas of possible activity. However, their claim is that ecological pressure is related not to the number of activities, but rather to the ratio of activities to the number of students. Because the

number of activities does not keep pace as school population increases, pressure is likely to be more intense in smaller schools. One might claim that the feasibility rather than the possibility of involvement is the critical factor in sensed obligation and thus pressure to participate.

The measures of press obtained from the High School Characteristics Index make more sense in explaining the size and sex differences in school-related alienation. If one predicts that students will feel most alienated in situations where the school provides fewer opportunities for participation, the High School Characteristics Index measures of press would indicate that males and students from smaller schools should feel most alienated from their schools. These results were demonstrated in the present study. It may be inappropriate to assume a causal relationship between perceived opportunities for involvement and alienation. Perhaps the alienated student sees fewer relevant opportunities for participation rather than becoming alienated because of a lack of opportunity. A distinction between these two possibilities cannot be made on the basis of present data.

School size represented a powerful variable in the present research. Rather than attempting to arrive at a decision regarding the optimal size for high schools, it would seem most profitable to consider the positive and negative aspects of the existing schools. Perhaps the variables of interest in this study can be extended to the investigation of the environment within individual schools. For this purpose, three types of information seem pertinent; depth of involvement, feelings of personal competence, and alienation from the school. Because of the practical implications which this type of research might suggest, it would seem imperative that the interrelationship of these variables be further specified.

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FOOTNOTES

[1]Complete analysis of variance tables are available upon request.

Table 1. Means for Alienation and Participation Variables

Group		Activity						
Size	Sex	Aca	Ath	Soc	Art	Club	Div	Alien
Small	Male	.95	1.22	.69	.97	.75	2.51	21.57
Small	Female	1.22	.84	.72	1.77	1.39	3.14	18.41
Large	Male	.68	1.02	.52	.52	.30	1.03	19.59
Large	Female	.93	.49	.56	.52	.65	2.02	18.07

Abbreviations: Aca - academics; Ath - athletics; Soc - social activities; Div - diversity of activities; Alien - alienation

Table 2. Regression Models With Self Concept as the Dependent Variable

Size/Sex	Predictors					Model Significance	R^2
	Ath	Aca	Soc	Art	Clubs		
Small-Male	.01	.01	.01	.01		.001	.20
Small-Female		.01	.01	.001	.001	.001	.27
Large-Male	.01	.01				.01	.13
Large-Female		.01				.01	.20

Table 3. Correlations of Alienation, Self-Concept and Dimensions of Press for the Entire Subject Sample[1]

	IO	SA	SEC	SC	A
Intellectual Orientation (IO)	-	.53	.15	.10	-.39
Student Activities (SA)		-	.17	.15	-.30
Strong Environmental Control (SEC)			-	-.01	-.18
Self Concept (SC)				-	-.14
Alienation (A)					-

[1]Total sample equals 1510 subjects

Table 4. Correlations of Alienation, Self-Concept and Dimensions of Press for Large School Samples[1]

	IO	SA	SEC	SC	A
Intellectual Orientation (IO)	-	.52	-.01	.15	-.42
Student Activities (SA)	.55	-	-.05	.06	-.17
Strong Environmental Control (SEC)	.13	.13	-	-.01	-.11
Self-Concept (SC)	.26	.32	-.08	-	-.01
Alienation (A)	-.40	-.29	-.16	-.06	-

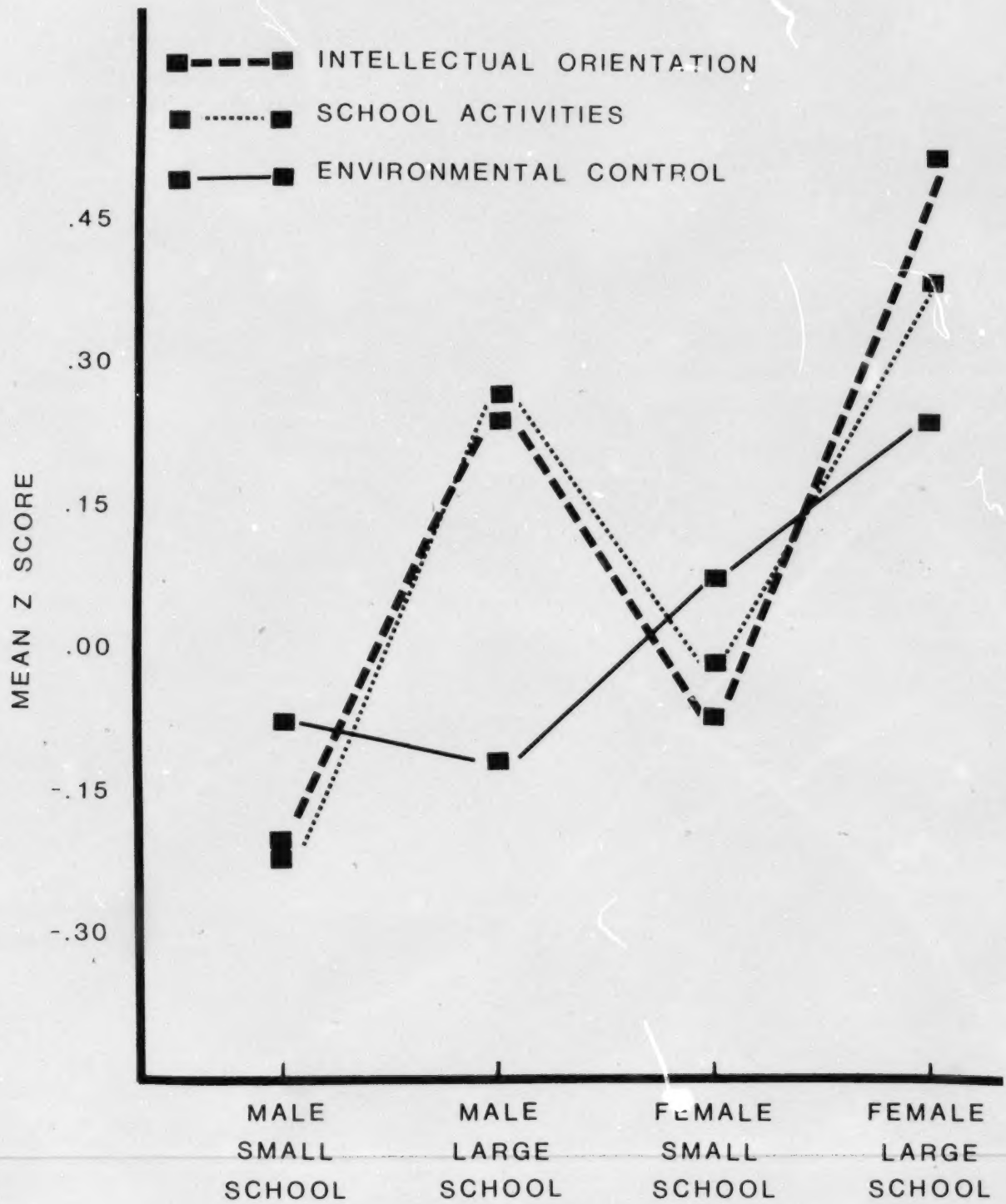
[1]Sample of 227 males are represented above the diagonal, 194 females below

Table 5. Correlations of Alienation, Self-Concept and Dimensions of Press for Small School Sample[1]

	IO	SA	SEC	SC	A
Intellectual Orientation (IO)	-	.53	.23	.01	-.33
Student Activities (SA)	.47	-	.22	.12	-.31
Strong Environmental Control (SEC)	.14	.20	-	.05	-.14
Self Concept (SC)	.07	.15	-.02	-	-.11
Alienation (A)	-.42	-.31	-.25	-.28	-

[1]Sample of 545 males are represented above the diagonal, 544 females below

FIGURE 1. MEAN HSCI RESPONSES



APPENDIX A:

ALIENATION QUESTIONNAIRE

Instructions. The following questions are intended to measure the importance you attach to your school. Answer the questions by darkening the letter corresponding to the answer which reflects the way you feel.

1. In general, how well do you like your school?
   a. I like it very much
   b. I like it
   c. Neither like nor dislike
   d. Many days I would like to stay away
   e. If I could, I would quit

2. During the past school year, did you ever stay away from school just because you didn't want to come?
   a. No
   b. Yes, for 1 or 2 days
   c. Yes, for 3 to 6 days
   d. Yes, for 7 to 15 days
   e. Yes, for 16 days or more

3. During the last two years, it seems to me that:
   a. school is much more directly related to life outside school
   b. school has little relationship to life outside school
   c. much of what I hear in school is contradictory to what I see outside of school

4. If you were to judge the degree to which you are using your ability in school, what rating would you give?
   a. above my ability
   b. equal to my ability
   c. below my ability

5. How much time do you usually spend on school work outside of school each day?
   a. none at all
   b. less than one-half hour
   c. one hour or more

6. Do you have your school work finished on time?
   a. always
   b. usually
   c. sometimes
   d. seldom
   e. never

7. Concerning the things I do as school work:
   a. I think almost all of the school work I do is valuable
   b. I think about 3/4 of the school work I do is valuable
   c. I think about ½ of the school work I do is valuable
   d. I think about 1/4 of the school work I do is valuable
   e. almost none of the work I do is valuable

8. How often do teachers compliment you concerning some phase of your school work?
   a. almost every day
   b. about once a week
   c. about once a semester
   d. I don't remember it ever happening

9. As this school enforces regulations so that learning and instruction can occur, I think the enforcement is:
   a. about right
   b. too weak
   c. much too weak
   d. too strict
   e. much too strict

10. If something happened and you had to stop school now, how would you feel?
   a. very happy - I'd like to quit
   b. I wouldn't care one way or another
   c. I would be disappointed
   d. I would try hard to continue
   e. I would do almost anything to continue

11. If I were to list the five or six most important questions I have about my life, and then examined what I am learning in school, I would find that the school is providing me with help in examining possible answers to?
   a. most of the important questions in my life
   b. about half of my important questions
   c. one or two of my important questions
   d. no important questions
   e. school experiences prevent me from seeking solutions to important questions

12. In general, are you satisfied or dissatisfied with the way you are treated by teachers and other school officials?
   a. very well satisfied
   b. satisfied
   c. neither satisfied nor dissatisfied
   d. dissatisfied
   e. very much dissatisfied

13. If I were to list the five or six most important problems that this community faces and then looked at what I am learning at school, I would find that school is helping me to examine possible approaches to:
   a. most of the important problems in this community
   b. about half of the important problems
   c. one or two of the important problems
   d. school experience ignores the communities problems